GELKIN, G. N.

USSR/Electricity - Semiconductors G-3

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 1303

Author : Vul, B.M., Vavilov, V.S., Smirnov, L.S., Gelkin, G.N., Patskevich, V.M., Spitsyn, A.V.

Inst : -

Title : Transformation of the Energy of β Particles Into Electric Energy in Germanium Crystals with P-N Junctions.

Orig Pub : Atomn. energiya, 1957, 2, No 6, 533-536

Abstract : The authors report results of an investigation of the direct transformation of the energy of β particles into electric energy in germanium crystals of the n-type with p-n junctions, obtained by melting-in indium. The sources of the β particles were the compounds $Sr^{90} - Y^{90}$ with activities of 50, 100, and 200 millicurie. The experiments were also performed with artificially-accelerated electrons with energies from 400 to 1150 kev, the intensity of the electron beam reaching values corresponding

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USSR/Electricity - Semiconductors G-3

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 1303

to sources of β particles with activity of several tens of curies. The effectiveness of the transformation of the energy was determined from the loading characteristics. For a β -particle source with activity of 200 millicurie, the efficiency of the converter reached 0.06% at 13 mv and a short-circuit current of 41 microamperes, and in the case of irradiation by electrons, the maximum efficiency was 0.72% at 0.115 v and short-circuit current of 2.6 ma. The dependence of the transformation efficiency on the power of the flux of observed radiation and of the integral dose was determined. It was established that the essential factor that reduces the efficiency of transformation at high electron current intensities is the reinforcement of the recombination capture of the carriers by defects that appear as a result of the irradiation. The change in the equilibrium electric conductivity and carrier mobility plays

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Abs Jour : Ref Zhur - Fizika, No 1, 1958, 1303

a secondary role. It is indicated that it is possible to restore the initial properties of crystals by heating them. Other possible types of semiconducting energy transformations to transform the energy of radioactive decay into electric energy are considered.

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L 05313-67 EWG(k)-2/EWT(d)/T/EWA-2 UR/
ACC NR: AM6015745 Monograph 27

Gell', P. P.

Design of aircraft radio electronic equipment; a textbook (Konstruirovaniye samoletnoy radioelektronnoy apparatury; uchbnoye posobiye) Leningrad, 1965. 142 p. illus., biblio. (At head of title: Ministerstvo svyazi SSSR. Leningradskiy elektrotekhnicheskiy institut svyazi im. prof. M.A.Bonch-Brueyvicha) 2200 copies printed.

TOPIC TAGS: electronics, electronic engineering, radio equipment, aircraft electronic equipment design, aircraft instrumentation

PURPOSE AND COVERAGE: This book is intended for technical personnel concerned with the design of electronic equipment to be installed aboard aircraft and for students at higher radio-engineering schools. It discusses problems arising with the development of on-board radio equipment. The basic methods of unit arrangement are reviewed, the design of plug-in units is analyzed, and the basic premises for the planning of unit parts are presented. Methods of sealing and cooling units are dicussed. The accuracy of the transmission of forward and rotary-motion guides is analyzed. The basic principles of the arrangement of on-board equipment making use of printed assemblies and micromodular designs are reviewed. The planning of on-board con-

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trols is discussed in detail. The author thanks Candidates of Technical Sciences, Docents N.K.Ivanov-Yesipovich and G.I.Arkhangel'skiy for their advice.

TABLE OF CONTENTS:

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ACC NR: AM6015745

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L 05313-67
ACC NR: AM6015745

SUB CODE: 01, 09/ SUBM DATE: 26Jun65/ ORIG REF: 011

Card 5/5

GELLA, Aleksander

Social pragmatism as a background for the development of American sociology. Kwart hist nauk i tech 7 no.4:479-497 '62.

GELLA, Aleksander, dr; KORSZYNSKI, Jerzy Zbigniew, mgr

Research on social mobility and the usefulness of the research for the construction industry. Inst org i mechan bud prace 12 no.44:47-65 '62.

GELLA, Aleksander

Sessions of the Scientific Council of the Institute for the History of Science and Engineering of the Polish Academy of Sciences. Kwart hist nauki i tech 8 no.2:314-317 '63.

GELLA, J.

Fight against railroad stoppages. p. 173.
ZELEZNICE, Prague, Vol. 4, no. 7, July 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6, June 1956, Uncl.

GELLA, J.

We fulfill the decree of the 10th Congress of the Communist Party of Czechoslovakia. p. 254.
ZELEZNICE, Prague, Vol. 4, no. 10, Oct. 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6, June 1956, Uncl.

GELLA, J.

Innovation methods of Soviet locomotive engineers. p. 282.
ZELEZNICE, Prague, Vol. 4, no. 11, Nov. 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6, June 1956, Uncl.

BELTEKY, Lajos; N.GELLAI, Agnes; LANG, Gabor

The No.2 hot-water well at Csepel. Hidrologiai kozlony 42 no.3:246-254 Jl '62.

GELLAI, Borbala

Evaluation of the measurement of angular distribution of γ-radiation by the method of weighed least squares. Koz fiz kozl MTA 11 no.6:449-457 '63.

BELLAI, I.

Why do we not manufacture computing machines? p. 253 (Geodezia es Kartografia Vol. 8, no. 3, 1956 Budapest)

SO: Monthly List of East European Accession (EEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

GELLEBRAND, L., inzhener.

Tafel's law of "natural lengths." Stal' 16 no.8:742-743 Ag '56.
(MLRA 9:10)
1.Metallurgicheskiy institut Ostrava, Chekhoslovakiya.
(Rolling (Metalwork))

L 46794-66 EWI(1) IJP(c) WW/CG

ACC NR: AP6032792 SOURCE CODE: HU/0034/65/013/005/0399/0409

AUTHOR: Berecz, Endre; Gellen, Gyorgy

ORG: Department for General and Physical Chemistry, Technical University for the Heavy Industry, Miskolc (Nehezipari Muszaki Egyetem, Altalanos es Fizikai kemiai Tanszek)

TITLE: Some problems in the measurement of the dielectric characteristics of liquids and solutions of high electrical conductivity in the microwave frequency range

SOURCE: Magyar fizikai folyoirat, v. 13, no. 5, 1965, 399-409

TOPIC TAGS: dielectric property, electric conductivity, microwave technology

ABSTRACT: The non-resonant technique, in its reflection and transmission forms, was investigated to establish whether it is suitable for the determination of the dielectric characteristics of liquids and solutions in the microwave frequency range. The former form was found to be the more convenient but the less accurate; the latter, the less convenient but the more accurate. In the latter form only part of the signal applied enters the measuring stage; it is capable of further development, resulting in even better accuracy. Orig. art. has: 3 figures, 32 formulas and 5 tables. [JPRS: 35,327]

SUB CODE: 20, 09 / SUBM DATE: 20Feb65 / SOV REF: 001 / OTH REF: 003

Card 1/1

TAKACS,E.; TOMITY,Helene T.; GELLEN,J.

On hemato-cerebrospinal permeability in hypothermia. Acta physiol. hung. 17 no.1:75-80 '60.

1. Physiologisches Institut und Anatomisches Institut der Medizinischen Universitat, Szeged.
(HYPOTHERMIA INDUCED exper.)
(HEMATOENCEPHALIC BARRIER)
(PENICILLIN metab.)

PORSZASZ, J.; GELLEN, J.; PORSZASZ-GIBISZER, Katalin; KERTESZ, Erzsebet

Differences in Na and K content between the atrium and ventricle of the frog's heart and their dependence on metabolism. Acta physiol. akad. sci. hung. 21 no.1:55-63 '62.

1. Institute of Physiology, Medical University, Szeged.

(SODIUM chemistry) (POTASSIUM chemistry)
(MYOCARDIUM chemistry)

HUNGARY

GELLEN, J., KERTESZ, E., and PORSZASZ, J., of the Institute of Physiology, Medical University, Szeged [Original version not given].

"Studies of the Revival of the Automatism of Frog Hearts Arrested by the Stannius II Ligature"

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Supplement to Vol 22, 1963; p 8.

Abstract [Authors' English summary, modified]: It has been observed that after the second Stannius ligature has been placed ventricular automatism is revived in but about 40 percent of the cases. Measurement by microelectrodes of the transmembrane and action potentials has shown that at the base of the ventricle the transmembrane potential values are grouped around two maximums, 45-55 mV and 65-75 mV. As opposed to this, at the apex the values are between 65 and 80 mV in 90% of the cases. The explanation of the revival of automatism is to be sought in the presence of atrial type fibers among the ventricular muscle fibers.

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OBSTETRICS AND GYNECOLOGY

HUNGARY

GELLEN, Janos, Dr, KOVACS, Zoltan, Dr, SZONTAGH, Ferenc, Dr, BODA, Domokos, Dr; Medical University of Szeged, Obstetrical and Gynecological Clinic (director: SZONTAGH, Ferenc, Dr) and Pediatric Clinic (director: BODA, Domokos, Dr) (Szegedi Orvostudomanyi Egyetem, Szuleszeti es Nogyogyaszati Klinika es Gyermekgyogyaszati Klinika).

"Fetomaternal Microhemotransfusion as a Result of Instrumental Abortion."

Budapest, Orvosi Hetilap, Vol 107, No 16, 17 Apr 66, pages 732-734.

Abstract: [Authors' Hungarian summary] It was established that the number of erythrocytes which contain fetal hemoglobin significantly increases in the maternal circulation as a result of instrumental abortion. Such elevation can be noted in about 70 per cent of the cases. The possibility of sensitization is raised in cases of abortion of an incompatible pregnancy. 19 Western references.

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CM
GELLER, A.

7

Effect of a third element on the rate of diffusion of zinc from a brass. S. D. Gertsriken, A. Geller, and V. Trofimenko (Acad. Sci. Ukrain. S.S.R., Kiev). *Izvest. Sektora Fiz.-Khim. Anal., Inst. Obshchei i Neorg. Khim., Akad. Nauk S.S.R.* 16, No. 2, 171-9 (1949). The effect of Sn, Ni, and Pb on diffusion of Zn from a brass was studied in vacuo at 600-870°. Sn and Pb, the former dissolving in Cu and the other not dissolving, both greatly increased the diffusion of Zn from α-brass. Ni had no effect. The heat of diffusion in the tested specimens remained practically the same. M. Hosch

CA
Geller, A.

Azotobacter in soils under grassland crop rotation

A. Geller and L. G. Kharitun (All-Soviet Beet Sugar Research Inst., Kiev). *Mikrobiologiya* 20, 111-18 (1951). For bacterial N fixation during crop-rotation cycles, the soil needs org. compds. with low oxidation-reduction potential. Their mineralization depletes the N-fixation capacity of the soil. Manures replenish the org. compds. and stimulate N fixation. Effects of several crop plants on azotobacter counts in the soil are noted. I. F. S.

GELLER, A.

Rack for suspending hog carcasses. Khol.tekh. 37 no.2:51-52 My-Ap '60. (MIRA 13:10)

(Chelyabinsk--Cold storage warehouses--Equipment and supplies)

GELLER, A.A.

Increasing [illegible] and A. [illegible] [illegible]

[illegible] but otherwise satisfactory physico-chemical properties. [illegible] the mol. wt. of the polymer decreases [illegible], and the amount of bound chlorine is reduced. The effect of various factors, e.g., water hardness, and the presence of Fe in the precipitating and in the spinning bath, and the effect of stabilisers in the spinning solution of the perchlorovinyl resin on the linkage of chlorine liberated from HCl during decomposition in light, were examined. The light-fastness is higher in fibre from a resin not containing low-molecular fractions than in ordinary fibre; the addition of fixing agents to the spinning solution (28% solution of the perchlorovinyl resin in acetone) considerably increases the light-fastness of the fibre without affecting its physico-mechanical properties (e.g., strength and elongation).

J. Text. Inst. (R.B.C.)

2 May

(1)

15(4)
S/183/59/000/06/004/027
B004/B007

AUTHORS: Geller, A. A., Pakshver, A. B.

TITLE: Investigation of the Process of the Dying of Polyacrylonitril Fibers. 1. Report

PERIODICAL: Khimicheskiy volokna, 1959, Nr 6, pp 15-17 (USSR)

ABSTRACT: The authors point out the well-known difficulties connected with the colorability of polyacrylonitril-(PAN)-fibers, the causes of which have as yet not been investigated. They describe the determination of the diffusion coefficient of the coloring agent into the fiber. As coloring substances methylene blue and kislotnyy alyy prochnyy (acid blood red fast, an azo-dye) were used. As no data on the determination of the coloring substance absorbed by PAN-fiber are available in publications, the authors elaborated two methods: 1) Stripping of the coloring substance by means of a 50% aqueous solution of dimethyl-formamide until the complete decoloration of the fiber. 2) Dissolving the fiber in concentrated dimethyl formamide. In both cases the coloring substance content is determined by means of a photocolorimeter of the type FEK-M and a calibration curve. The authors give an equation for the cal-

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Investigation of the Process of the Dying of Polyacrylonitril Fibers. 1. Report

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culation of the diffusion coefficient as a function of the coloring agent quantity C_t absorbed in the time t and C_∞ (absorption of coloring substance up to equilibrium). They determined the diffusion coefficient on fibers which originated from different stages of production (Table 1). After drawing, the diffusion coefficient falls rapidly. Drying at 120° diminishes colorability. A diagram shows the absorption isothermal lines for fibers from different stages of production. In the course of production, a considerable consolidation of fiber structure occurs. The diffusion rate and C_t are reduced, whereas C_∞ increases. There are 1 figure, 2 tables, and 9 references, 6 of which are Soviet.

ASSOCIATION: Kalininskiy filial VNIIV (Kalinin Branch of the All-Union Scientific Research Institute for Synthetic Fibers)

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Geller, A. A.

15.5550

S/183/60/000/03/04/007
B020/B054

82063

AUTHORS: Geller, A. A., Konkin, A. A., Myagkov, V. A.

TITLE: Fractional Composition of Polyethylene Terephthalate

PERIODICAL: Khimicheskiye volokna, 1960, No. 3, pp. 10-12

TEXT: It is known that not only the mean molecular weight of the polymer but also its polydispersity exert an influence on the properties of artificial fibers. The greater the inhomogeneity of the polymer with respect to the molecular weight, the more irregular are the physico-mechanical properties of the fiber obtained. Polyester formation and determination of polydispersity of various polyesters was investigated by V. V. Korshak and co-workers. Papers by E. Turska-Kusmierz, T. Skuarski (Refs. 4, 5), and F. Rybnikář (Ref. 6) were concerned with the study of the composition of polyethylene fractions. In the present investigation, the authors studied the change in polydispersity of a polyester resin in polycondensation and repeated melting. The type of change in the composition of polyethylene terephthalate fractions was investigated by the authors under consideration of

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conditions of the technological process which was conducted on a semi-industrial scale. This process was briefly described in the paper by B. V. Petukhov and A. A. Konkin (Ref. 9). A method of fractionating polyethylene terephthalate from 1% solutions in a phenol - chlorobenzene mixture (1:1) by means of benzine precipitation was studied. The character of the position of the differential distribution curves (Fig. 1) for two parallel experiments shows a fully satisfactory reproducibility of the results obtained in fractionating. The polyester resin Lavsan is produced via two basic stages - trans-esterification and polycondensation. Data on the polymer composition in the individual reaction stages are graphically shown in Figs. 2 and 3 under consideration of the change in polydispersity and chain growth in polycondensation of Lavsan. The content of low-molecular fractions in the individual resin samples of Lavsan is shown in the table. The differential distribution curves of the molecular weight of the resin before and after repeated melting are shown in Fig. 4. The character of the differential curves shows that the molecular weight of polyethylene terephthalate slightly decreases in repeated melting. The polydispersity of the resin changes only little. Besides, the authors found a distinct tendency to an increase

Fractional Composition of Polyethylene Terephthalate

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in polymer molecule homogeneity while the drop in mean molecular weight in this case was effected by a reduction of the content of high-molecular components. The amount of low-molecular fractions and their distribution according to the molecular weight do not change practically. There are 4 figures, 1 table, and 10 references: 3 Soviet, 4 German, 1 Polish, 1 Czechoslovakian, and 1 British.

ASSOCIATION: VNIIV (Vsesoyuznyy nauchno-issledovatel'skiy institut volokna - All-Union Scientific Research Institute of Fibers)

Card 3/3

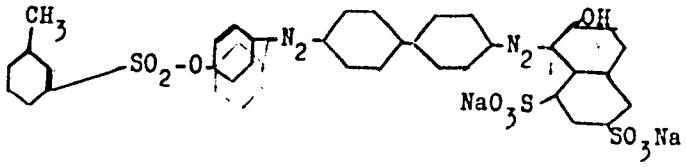
S/183/60/000/003/008/016/XX
B004/B067

AUTHORS: Geller, A. A. and Pakshver, A. B.

TITLE: Dyeing of Polyacrylonitrile Fibers in the Presence of Monovalent Copper

PERIODICAL: Khimicheskiye volokna, 1960, No. 3, pp. 19-21

TEXT: The authors experimentally studied the processes taking place when dyeing the polyacrylonitrile fiber, nitron, with acid dyes in the presence of monovalent copper ions. One-bath and double-bath dyeing were examined. Nitron was treated at 98°C and pH = 1.6 - 5.7 for 1.5 hours with 4% $CuSO_4$, 3% rongalite (calculated for the weight of the fiber), and the kislotnyy alyy prochnyy krasitel' (stable acid ruby dye). The structural formula of the dye is given:



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Dyeing of Polyacrylonitrile Fibers in the Presence of Monovalent Copper

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B004/B067

With rising concentration of copper and rongalite, the bound-copper content in the fiber increased. It amounted to $6.2 \cdot 10^{-5}$ moles/g (for 12.8% $CuSO_4$ referred to the weight of the fiber), and corresponded to the number of acid groups ($5 - 6 \cdot 10^{-5}$ equiv/g) of the fiber. Since the pH between 2 and 4.5 had no effect on the sorption of Cu and the dye, the following experiments were made at pH = 3.5. In one-bath dyeing, the amount of dye adsorbed was almost equivalent to the amount of copper adsorbed. In double-bath dyeing, less dye was adsorbed, probably as a result of the denser structure of the fiber dried after the first bath. Dyeing in the presence of bivalent copper (without addition of rongalite) showed the same quantitative results but duller color tints. Hence, the authors conclude that the following reactions take place: Cu^{2+} binds one molecule of dye with its second valence, Cu^{+}, however, binds the dye with its secondary valence. Although the dye contains two sulfo groups, one of them cannot react with the copper due to a static hindrance so that the maximum bond of the dye (Cu : dye) is 1 : 1, which corresponds to $6 \cdot 10^{-5}$ gram-equivalents of dye per gram of fiber. The authors give a short survey of the reducing agents, dyeing methods, and concepts of the reaction between copper ions and polyacrylonitrile fibers mentioned in Western

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Dyeing of Polyacrylonitrile Fibers in the Presence of Monovalent Copper

S/183/60/000/003/008/016/XX
B004/B067

publications. There are 4 tables and 12 references: 2 Soviet, 4 US, 1 French, and 5 German.

ASSOCIATION: Kalininskiy filial VNIIV (Kalinin Branch of the All-Union Scientific Research Institute of Synthetic Fibers)

Card 3/3

GELLER, A.A.; PAKSHVER, A.B.

Effect of the structure and number of polymer end groups on the dyeing of polyacrylonitrile fiber. Khim.volok. no.1:17-18 '61. (MIRA 14:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut stekloyanogo volokna.

(Orlon) (Dyes and dyeing --Textile fibers, Synthetic)

GELLER, A.A.; GELLER, B.E.; YERESHCHENKO, A.G.

Interaction of polyacrylonitrile fibers with amines and dyes. Khim. volok. no.4:15-18 '63. (MIRA 16:8)

1. Tashkentskiy tekstil'nyy institut.

L 24520-66 EWT(1)/T JK

ACC NR: AP6009527 (N) SOURCE CODE: UR/0413/66/000/005/0049/0049

INVENTOR: Bardyshev, I. I.; Rysev, M. A.; Shint, A. A.; Kanykina, T. D.; Parmon, A. I.; Geller, A. A. 25 B

ORG: none

TITLE: Method of stabilization of sticky material [announced by the Institute of Physical and Organic Chemistry AN BSSR (Institut fiziko-organicheskoy khimii AN BSSR)] Class 22, No. 179407

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 5, 1966, 49

TOPIC TAGS: insect control, stabilization

ABSTRACT: An Author Certificate has been issued for a method of stabilizing sticky material containing colophony for insect control. To increase the stability of the material, the colophony is modified at 170 to 300C with 0.5--2% zinc chloride. [NT]

SUB CODE: 11, 07/ SUBM DATE: 22Jan65/

Card 1/1 BLA UDC: 547.914.2-171:632-952

GELLER, A.G.; NAGLYA, V.V.; OVCHINNIKOV, L.I.

[Radio, physical, and chemical prospecting methods for ore deposits] Radiometriia i fiziko-khimicheskie metody razvedki poleznykh iskopaemykh; programma, metodicheskie ukazaniia i kontrol'nye zadaniia dlia uchashchikhsia geofizicheskoi spetsial'nosti zaochnykh otdelenii geologo-razvedochnykh tekhnikumov. Kiev, Glav. upr. geol. i razvedochnykh tekhnikumov. Kiev, Glav. upr. geol. i okhrany nedr pri Sovete Ministrov USSR, 1960. 174 p. (MIRA 14:8)

1. Kiyevskiy geologorazvedochnyy tekhnikum. 2. Prepodavateli Kiyevskogo geologorazvedochnogo tekhnikuma (for all).
(Prospecting)

18.1111

28867
S/180/61/000/004/004/020
E193/E383

AUTHORS: Braun, M.P., Vinokur, B.B., Geller, A.G. and Kondrashev, A.I. (Kiyev)

TITLE: On brittle fracture of alloy steel

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo. no. 4, 1961, pp. 43 - 49

TEXT: Although the Cr-Ni and Cr-Ni-Mo steels have been long established as materials suitable for applications in which resistance to brittle fracture is of primary importance, the search for similar steels of other compositions has been continued owing to economic considerations. Complex, Cr- and Mn-bearing steels have been found promising in this respect but lack of operational experience has prevented their use in the fabrication of components likely to be subjected to complex stresses in service; hence the present investigation whose object was to compare the tendency to fail by brittle fracture of three Cr-Mn and two Cr-Ni steels. The composition of these materials (containing 0.015 - 0.028% S and 0.022 - 0.030% P)

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is given in Table 1 under the following headings. steel; chemical composition, %. The experimental work consisted of the following: a) tensile tests conducted on special cylindrical test pieces which had a short central portion of a diameter larger (10 mm) than that of the remainder (7 mm), the central portion being provided with a notch varying in depth from specimen to specimen, but having a constant shape and width; b) tensile tests on cylindrical specimens 10 mm in diameter, provided with notches of 5 different types but of the same depth - these specimens are illustrated in Fig. 1; c) static bending tests conducted on standard notched bar test pieces (55 x 10 x 10 mm); d) determination of the ductile-to-brittle transition temperature by impact tests at various temperatures. All the experimental specimens were oil-quenched and tempered at temperatures selected so as to ensure the UTS of approximately 100 kg/mm^2. By water-quenching or furnace-cooling the specimens from the tempering temperature, material in ductile or brittle condition was obtained. The difference between the steels studied can be illustrated by data given in

Table 3, where the effect of variation of the notch shape on various mechanical properties is shown under the following headings: type of steel; number of the specimen in Fig. 1. $\sigma_{B.H.}/\sigma_B$; $\sigma_{Z.H.}/\sigma_Z$; δ_H/δ ; ψ_H/ψ ; $\sigma_{B.H}$, $\sigma_{Z.H.}$, δ_H and ψ_H denote, respectively, the UTS, true tensile strength, elongation, and reduction of area of the notched test pieces. σ_B, σ_Z, δ and ψ denoting the same properties of the unnotched specimen (specimen No. 1 in Fig. 1); each property of a notched specimen is therefore expressed in this table in % of this property of the unnotched test piece. The results of impact tests are reproduced in Fig. 3, where the impact strength (a_k, kgm/cm^2) is plotted against the test temperature ($^\circ$C), the four diagrams (from top to bottom) relating to steels 30ХГВТ (30KhGVT), 30ХГВМ (30KhGVM), 30Х2ГМТ (30Kh2GMT) 35ХНМ (35KhNM) and 40ХН (40KhN), the continuous curves relate to material in ductile condition the brittle and semi-ductile condition being indicated by broken and dotted curves

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respectively. It was concluded that the Cr-Mn steel containing approximately 0.3% C and additions of other carbide-forming elements, differs little from the Cr-Ni-Mo steels in respect to their tendency to brittle fracture under conditions of stress concentration. Steel 30Kh2GNT is least notch-sensitive, steels 30KhGVT, 30KhGVM and 35KhNM are approximately equal in this respect, steel 40KhN being most sensitive to the action of stress concentration. The effect of the degree of notch sharpness on strength and plasticity of the Cr-Mn steel was found to be similar to that observed in steel 35KhNM, the effect of stress-risers was particularly pronounced in steel 40KhN. It was found also that the notch-sensitivity and tendency to temper-brittleness can be assessed by static bending tests conducted on notched bar test pieces; assessed in this manner, steel 30KhGVM proved to have relatively high tendency to brittle fracture. The results of the impact tests showed that in respect to the tendency to temper brittleness and the ductile-to-brittle transition temperature steels 30KhGVT, 30KhGVM and 30Kh2GNT are similar to steel 35 KhNM steel 40KhN being characterised by a relatively higher tendency to

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E[illegible]/E383

On brittle fracture of [illegible] steel

temper brittleness and a higher ductile-to-brittle transition temperature. It was inferred from the results of the present investigation that steels 30[illegible]GVF and 30[illegible]2GMF can be recommended as substitutes for the Cr-Mo and Cr-Ni-Mo steels in the fabrication of machine components of complex shape, thereby considerable economies in the consumption of nickel and cobalt, which are not easily available, can be attained.
There are 3 figures and 5 tables.

SUBMITTED: October 10, 1960

Card 5/5

S/137/62/000/002/076/14
A006/A101

AUTHORS: Braun, M. P., Vinokur, B. B., Geller, A. G., Kondrashev, A. I.

TITLE: On brittle failure of alloyed steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 37, abstract 2I221 ("Izv. AN SSSR, Otd. tekhn. n.", 1961, no. 4, 43 - 49)

TEXT: The authors studied sensitivity to brittle failure of complex-alloyed Cr-Mn-base steels, such as 30ХГВТ (30KhGVT), 30ХГВМ (30KhGVM) and 30Х2ГМТ (30Kh2GMT), and carried out comparison tests of two Cr-Ni base steel grades; 40ХН (40KhN) and 30ХНМ (30KhNM). Cr-Mn steels containing 0.3% C and additionally alloyed with a complex of carbide-forming elements, and Cr-Ni-Mo steels show the same sensitivity to brittle failure under the effect of stress concentration. KhGVT, 30KhGVM and 35KhNM steels have an almost equal proneness to brittleness. Highest brittleness under the effect of a notch is shown by 40KhN steel. Tests by the method of static bending of notched specimens of rectangular section make it possible to estimate the proneness of steel to failure under the effect of a notch and to temper-brittleness. In 30KhVGM steel an increase of brittle sensitivity is observed when using this test method. Dynamic tests at low tempera-

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S/137/62/000/002/076/144
A006/A101

On brittle failure of alloyed steel

Tests of 30KhGVT, 30KhGVM and 30Kh2GMT steels show that the sensitivity to temper brittleness of these steels is almost similar. 30KhN steel is characterized by higher sensitivity to temper brittleness. 30 KhGVT and 30Kh2GMT steels are recommended for intricate-shaped machine parts.

T. Rumyantseva

[Abstracter's note: Complete translation]

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BRAUN, M.P.; VINOKUR, B.B.; KONDRASHEV, A.I.; GELLER, A.L.

Chromium-manganese base steel for large forgings. Izv. vys. ucheb. zav.; chern. met. 4 no.8:108-111 '61. (MIRA 14:9)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
(Chromium-manganese steel)

41558
S/148/62/000/008/005/009
E071/E483

18.8200

AUTHORS: Braun, M.P., Vinokur, B.B., Geller, A.L.

TITLE: The effect of additional alloying additions on hardenability of chromium-manganese steels

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no.8, 1962, 128-134

TEXT: The range of application of Cr-Mn steels can be greatly increased by introducing additional carbide-forming alloying elements that improve their mechanical properties without adversely affecting their temper brittleness. To assess the suitability for the fabrication of large forgings of alloyed Ni-free Cr-Mn steels, it was necessary to compare their hardenability with that of other Ni-bearing materials used at present for this purpose - hence the present investigation conducted on the steels as shown in Table 1. Hardenability was determined by the standard Jominy end-quench test, its results being expressed in terms of both the critical diameter and the hardness/distance from the quenched end graphs. The 30X2Г2МТ (30Kh2G2MT) and 30Х2ГМТ (30Kh2GMT) steels had the highest

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The effect of additional ...

hardenability which was so high that the critical diameter for these steels could not be calculated from data obtained on the standard specimens (25 mm in diameter). For the other steels the critical diameters were: 170 mm for 40XH (40KhN), 220 mm for 30XГВТ(30KhGVT) and 350 to 370 mm for 35XHM (35KhNM), 40XГВТ(40KhGVT) and 30XГВМ(30KhGVM). The ideal critical diameters, calculated by the method entailing the use of a multiplying factor for each alloying element are shown in Table 2. This method, while useful for screening purposes, is not very accurate. Much better results can be obtained by superimposing the cooling curves, constructed for various points on the cross-sections of specimens of various diameters, on the thermo-kinetic diagrams (as opposed to the TTT curves) of the martensitic transformation of the appropriate steels. By this means accurate information can be obtained not only on the critical diameter but also on the structure obtained under various conditions of specimen size and cooling rate. The use of this method was demonstrated on several of the steels studied, the appropriate diagrams being reproduced in the present paper.

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The effect of additional ...

Conclusion: the steels 30Kh2G2MT and 30Kh2GMT could replace the Ni-bearing steels in the fabrication of large forgings. There are 2 figures and 2 tables.

ASSOCIATION: Ukrainskaya Akademiya sel'skokhozyaystvennykh nauk (Ukrainian Academy of Agricultural Sciences)

SUBMITTED: November 15, 1960

Table 1.

Сталь	C	Si	Mn	Cr	W	Mo	Ti	Ni	S	P
30ХГВТ	0,33	0,42	1,17	1,15	0,77	—	0,09	0,20	0,015	0,022
30ХГВМ	0,31	0,25	1,05	1,15	0,83	0,24	—	0,23	0,016	0,029
30Х2ГМТ	0,28	0,32	1,10	1,84	—	0,49	0,08	0,35	0,029	0,030
30Х2Г2МТ	0,31	0,47	1,52	2,05	—	0,35	0,12	0,21	0,020	0,028
40ХГВТ	0,41	0,53	0,96	1,21	0,82	—	0,08	0,23	0,016	0,030
40ХН	0,39	0,33	0,59	1,25	—	—	—	1,56	0,030	0,019
35ХНМ	0,37	0,24	0,69	1,65	—	0,29	—	1,73	0,029	0,019

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Table 2.

Steel	Ideal critical diameter, mm For suppressing the pearlite transformation	For suppressing the intermediate transformation
30ХГВТ	591	296
30ХГВМ	715	136
30Х2ГМТ	885	310
30Х2Г2МТ	1440	570
40ХГВТ	617	200
40ХН	246	207
35ХНМ	485	203

S/148/62/000/012/007/008
E193/E383

AUTHORS: Braun, M.P., Vinokur, B.B., Kondrashev, A.I. and Geller, A.L.

TITLE: Search for nickel-free constructional steels

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no. 12, 1962, 126 - 130

TEXT: Cr-Ni steels, widely used in the heavy machine tool-building industry, although characterized by good hardenability, are prone to temper-brittleness. The standard method of preventing this effect is to alloy the steel with Mo. The object of the present investigation was to find out whether nickel-free steels with properties similar to those of Cr-Ni-Mo steels could be developed. The composition of Ni-free and Ni-bearing steels used in the experiments is given in Table 1. The effect of tempering temperature on the impact strength a_k of the steels in the ductile (i.e. rapidly cooled) and brittle (slowly cooled) condition was studied in the first series of experiments. In this respect, the (Mo + Ti) addition was found to be the most effective. Steel 30ХГМТ (30Kh2GMT), tempered at 400 - 500 °C, had $a_k \approx 4$ kgm/cm^2;

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Search for ....

a_k rapidly increased on increasing the tempering temperature, reaching a value of about 21 kgm/cm^2 after tempering at 675 °C; the difference between a_k of this steel in the brittle and ductile condition was negligible for the entire range of tempering temperatures studied. For comparison, a_k of steel 40ХН (40KhN), tempered at 675 °C, was 13 kgm/cm^2 for the ductile and 6.5kgm/cm^2 in the brittle condition. a_k of the steels at sub-zero temperatures was studied in the next series of experiments. The measurements were carried out on specimens hardened and tempered to produce UTS of 100 kg/mm^2; ductile and brittle conditions were attained, respectively, by water-quenching the specimen after tempering and by cooling at 30 °C/h. Here again, the steel 30Kh2GMT gave the best results, its a_k, in the ductile condition at +80, +40, 0, -80 and -160 °C, being, respectively, 19, 17, 14, 10, 8 and 5 kgm/cm^2. The greatest difference between the value of a_k for the ductile and brittle conditions did not exceed 5 kgm/cm^2. Steel 40KhN in the ductile condition had

Search for ....

a_k = 14 kgm/cm^2 at 80 °C and 2 kgm/cm^2 at -160 °C, the corresponding values for the brittle condition being 7 and 0.5 kgm/cm^2. The relative proneness of the steels studied to brittle fracture is demonstrated in Table 4, showing the values of the "cold-brittleness threshold" defined as the temperature at which a_k of the steel constituted 50% of its value at room temperature. Conclusions: 1) Ni-free (Cr-Mn)-bearing steels with additional alloying elements show little tendency to brittle fracture and in this respect are similar to the Cr-Ni-Mo steel 35ХНМ (35KhNM). The ductility of these two types of steel at sub-zero temperatures is also comparable. 2) The results of studies of the mechanical properties (M.P. Braun et al - Metallovedeniye i termicheskaya obrabotka metallov, 1960, no. 12; Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1961, no. 8) and data on temper-brittleness, notch-sensitivity and ductile-to-brittle transition temperature (Braun et al, Izv. AN SSSR, OTN, 1961, no.4) of the steels 30ХГСВТ (30KhGSVT) and 30Х2МГТ (30Kh2MGT) indicate that these steels can be recommended as construction materials for large parts. There are 2 figures and 4 tables.

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S/148/62/000/012/007/008
E193/E383

Search for ....

ASSOCIATION: Ukrainskaya akademiya sel'skhokhozyaystvennykh nauk (Ukrainian Academy of Agricultural Sciences)

SUBMITTED: April 10, 1962

Table 1:

Type of steel	C	Si	Mn	Cr	Ni	W	Mo	Ti
30KhGVT	0.33	0.42	1.17	1.15	-	0.75	-	0.09
30KhGVM	0.31	0.25	0.05	1.10	-	0.75	0.75	-
30Kh2GMT	0.28	0.32	1.10	1.84	-	-	0.49	0.08
35KhNM	0.37	0.24	0.69	1.65	1.73	-	0.29	-
40KhN	0.39	0.33	0.59	1.25	1.56	-	-	-

Contents of S and P = 0.022 - 0.29%

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Search for ....

S/148/62/000/012/007/008"
E193/E383

Table 4:

Type of steel	Ductile condition		Brittle condition	
	Cold-brittleness threshold	Temperature interval	Cold-brittleness threshold	Temp. interval
30KhGVT	-75	35	-60	35
30KhGVM	-100	55	-50	50
30Kh2GMT	-90	35	-70	35
35KhNM	-95	35	-85	35
40KhN	-45	90	-20	100

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GELLER, A.L.

S/129/60/000/012/003/013
E073/E235

AUTHORS: Braun, M. P., Doctor of Technical Sciences, Professor, Gurshiyenko, K. F., Kondrashev, A. I., Vinokur, B. V. and Geller, A. L., Engineers

TITLE: Nickel-less Steel for Large Forgings

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, No. 12, pp. 16-17

TEXT: The authors developed the constructional steel 30ХГВТ (30KhGVT) (0.28-0.35% C; 0.17-0.37% Si; 1.0-1.2% Mn; 0.9-1.2% Cr; 0.7-0.9% V; 0.05-0.10% Ti; ≤ 0.030% S and P) the properties of which are at least as good as those of the hitherto used steel 40ХНМ (40KhNM). The steel was smelted in a basic arc furnace and was cast into ingots weighing about 15.9 tons. From the ingot specimens were forged, the forgings being of 500 and 700 mm cross-section. To prevent formation of flocculi the forging was subjected to isothermal annealing. Following that, the influence of quenching and tempering on the mechanical properties and the proneness to temper brittleness was investigated. It was found that with increasing quenching temperature, the properties improved and

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Nickel-less Steel for Large Forgings

the proneness to temper brittleness decreased with an only slight deterioration in the plastic properties. The investigations enabled establishing that for the specimen forgings the following heat treatment is desirable: quenching from 900°C in oil and tempering at 600°C. After heat treatment 130 mm thick discs were cut from the specimens for the purpose of investigating the mechanical properties along the cross-section. For the above heat treatment the steel had the following properties: σ_b = 99 kg/mm², σ_s = 89 kg/mm², δ = 17%, ψ = 57%, a_k = 11.3 kgm/cm² (cooling in air after tempering) and 12.0 kgm/cm² (cooling in water after tempering). It was found that forgings of up to 700 mm cross-section had a sufficiently high hardenability, a high strength and plasticity. The impact strengths and the yield point and strength values did not differ greatly for the two types of steel. For instance, at a distance of 1/3 of the radius from the surface of a 700 mm cross-section forging, σ_s = 60 kg/mm² for a_k = 7 kgm/cm². Towards the centre of the specimen the yield point dropped to 43 kg/mm² whilst the impact strength remained the same. The properties of 500 mm

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Nickel-less Steel for Large Forgings

dia forgings were about the same but were more stable throughout the cross-section. The authors recommend using this new steel for large forgings of up to 700 mm cross-section instead of the hitherto used 40ХН steel and for forgings of up to 500 mm cross-sections instead of the hitherto used 35ХМ (35KhM) and 40ХНМ (40KhNM) steels. There are 4 tables and 7 Soviet references.

ASSOCIATION: Institut liteynogo proizvodstva AN SSSR i Novo-Kramatorskiy mashinostroitel'nyy zavod (Foundry Institute, Academy of Sciences, USSR and Novo-Kramatorsk Machine Building Works)

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85130

S/182/60/000/004/001/007
A161/A029

1.1400

AUTHORS: Braun, M.P., Vinokur, B.B., Mirovskiy, E.I., Geller, A.L., Mar'yushkin, L.G.

TITEL: The Effect of Hot Forging Conditions on the Properties of Large Forgings

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No. 4, pp. 8-11

TEXT: To analize the effect of heating temperature on the properties of large forgings, a statistical analysis of two years shop records and data of previous investigations (Refs. 1-12) were used and experiments with 30 to 40-ton steel ingots were carried out. Ingots of 55X (55Kh), 55XH (55KhN) and 35XHM (55KhNM) steel were heated to higher temperature than usual and forged into stepped pieces with diameters of 960, 670 and 480 mm. Due to the higher temperature forging could be completed with a single heating, whereas in the established shop practice metal has to be heated twice with intermediate reheat. The effect of overheat and holding time at forging temperature was studied. It was stated that the compulsory longer heating time did not spoil the metal properties even when metal was heated to 30 to 40°C above the established limit. Macrostructure

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The Effect of Hot Forging Conditions on the Properties of Large Forgings

analysis revealed the same destruction of dendrites as is observed in forging with the accepted lower forging temperature; microstructure analysis with etching by a heated saturated aqueous solution of picric acid revealed no austenite grain growth. Test results proved that the tensile strength was slightly higher after a 30-hour holding at forging temperature than after a 10-hour holding; the cold brittleness threshold (i.e., the temperature at which impact resistance drops to 50 %) was at -100°C after a 30-hour holding and at -60°C after 10 hours (diagram, Figure 1) in 35KhNM steel; about -20°C in 50KhN (Fig. 2), and -25°C in 55Kh (Fig. 3); which means that the cold brittleness point was the same as usual in 35KhNM and 50KhN steel, and only by 5°C lower than usual in 55 Kh after a 10-hour holding. Increased forging temperature generally resulted in a slight drop of the cold brittleness threshold. The conclusion is drawn that heating to 30-40°C higher temperature than practiced (to 1,250°C for 55Kh, and 1,230°C for 50KhNM steel) did not impair the metal plasticity in deformation as well as the mechanical properties, provided that the entire forging process was completed with a single preheating, and the metal temperature at the end of the forging process was not too high (forging with intermediate reheats in same conditions

The Effect of Hot Forging Conditions on the Properties of Large Forgings

has not been studied), and there is no reason for worry if ingots have to be held at forging temperature for a longer time. As to the tensile strength of steel, increased heating temperature and longer holding at this temperature does not impair it, and in separate cases it is even increased. There are 3 figures, 6 tables and 12 Soviet references.

Card 3/3

BRAUN, M.P.; VINOKUR, B.B.; MIROVSKIY, E.I.; GELLER, A.L.

Effect of temperature and time of large ingot heating for forging purposes, on the properties of steel. Izv. vys. ucheb. zav.; chern. met. no.12:111-113 '60. (MIRA 14:1)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
(Steel ingots) (Forging)

PHASE I BOOK EXPLOITATION SOV/5681

Braun, Mikhail Petrovich, Bertol'd Bentsionovich Vinokur, Eduard Ippolitovich Mirovskiy, Aleksandr L'vovich Geller, and Lev Grigor'yevich Mar'yushkin

Plasticheskaya deformatsiya i teplovaya obrabotka krupnykh izdeliy iz legirovannykh staley (Plastic Deformation and Heat Treatment of Large Alloy-Steel Products) Moscow, Mashgiz 1961. 216 p. 6,000 copies printed.

Reviewer: N. V. Fiksen, Engineer; Ed.: P. Ya. Furer; Tech. Ed.: M. S. Gornostaypol'skaya; Chief Ed.: (Southern Division Mashgiz) V. K. Serdyuk, Engineer.

PURPOSE : This book is intended for technical personnel of industrial plants and scientific research institutes.

COVERAGE: The theoretical principles of plastic deformation of steels and the role of manufacturing-process factors in deformation are discussed. Methods of studying metal plasticity

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at forging temperatures are described in detail along with results of investigations of the plasticity of various steels conducted by the authors under laboratory and shop conditions. Also described is a method of statistical analysis of processing parameters applied to determine the cause of defects caused by hot plastic deformation. The effect of the temperatures at the beginning and at the end of deformation, the degree of deformation, and test conditions on the structure and properties of medium-weight and heavy forgings is also analyzed. The following took part in the experimental studies: A. N. Sokol, Candidate of Technical Sciences; S. M. Skorodziyevskiy, Senior Scientific Worker; Engineers A. I. Kondrashev, Z. L. Oboznaya, B. D. Matyukhin, and A. A. Ivanova; Aspirants O. S. Kostyrko and N. K. Golubyatnikov; and Technicians L. N. Kovalenko and S. M. Simonova. There are 62 references, all Soviet.

GELLER, A. L.

2

23621
S/148/60/000/012/013/020
A161/A133

18.5100

AUTHORS: Braun, M. P.; Vinokur, B. B.; Mirovskiy, E. I., and Geller, A. L.

TITLE: The effect of the temperature and duration of heating on the properties of steel in large forging billets

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 12, 1960, 111 - 113

TEXT: As had already been proven, the deformation temperature can be raised [Ref. 1: M. P. Braun, O. S. Kostyrko et al. Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, no. 2; Ref. 2: M. P. Braun, O. S. Kostyrko et al. "Kovka zagotovok iz stali 45 pri povyshennoy temperature nagreva" (Forging of 45 Grade Steel Blanks at High Heating Temperatures). Mashinostroyeniye i priborostroyeniye, BTI Kiyevskogo sovnarkhoza, 1959, no. 11 - 12], but the data were obtained with small-size forgings, and it is generally believed that the plasticity and ultimate strength of steel are lower in larger pieces (Refs. 4, 5, 6 see English-language publications). The purpose of the investigation described here was to study the

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The effect of the temperature and duration of...

effect of higher than conventional heat on steel in large ingots. Stepped forgings were forged from ingots of the steel grades 55X (55Kh), heated to 1,250°C, 50XH (50KhN) and 35XHM (35KhNM), heated to 1,230°C, 960, 670 and 460 mm in diameter. No cracks originated during forging, and the entire forging process was finished with one heating, while such forgings have to be reheated in the forging process at heating temperatures used hitherto. The formation of flakes was prevented by isothermic annealing: 55Kh and 50KhM billets were subjected to normalization with tempering, and 35KhNM to thermic improvement. Disks 150 mm thick were cut out of the middle of forgings for mechanical tests. In 55Kh steel the strength varied only insignificantly through the different diameter steps - ultimate strength 86 - 78 kg/mm^2, yield limit 40 - 32 kg, impact resistance 2.8 - 5.6 kg/cm^2, but the difference in plasticity was higher - from 40% on the surface to 22% in the center in the axial direction. The variations of mechanical properties in 50KhN steel were analogous. Also in the 35 KhNM grade they were analogous but all the properties were higher than in 50KhN. The effect of the holding time at the forging temperature was also studied at the same time. This problem has not yet been clarified, and the holding time is chosen

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The effect of the temperature and duration of...

empirically, e.g. the accepted holding time for 30 - 40-ton ingots is from 10 to 30 hrs. Holding for 10 and 30 hrs was tried in the tests. It was obvious that heating temperatures 30 - 40°C higher than prescribed in the forging technology of the Novo-Kramatorskiy mashinostroitel'nyy zavod (Novo-Kramatorsk Mechanical Engineering Plant) did not impair the mechanical properties of steel, and sometimes even improved them, and even in very large cross sections (up to 1,000 mm). Conclusions: 1) Heating of the 35KhMA and 50KhMA steel to 1,230°C and of 55Kh steel to 1,250°C did not affect the plasticity in forging nor did it reduce the mechanical properties after the heat treatment; 2) Longer holding at higher forging temperatures did not deteriorate the mechanical properties of steel; 3) Higher forging temperatures and longer holding at such temperatures (up to 30 hrs) did not reduce the ductility of steel in large ingots, and even improved it in some instances through homogenation; 4) The use of higher heating temperatures for forging, speeds up the plastic deformation process, and deformation requires lower efforts. There are 12 references: 9 Soviet-bloc and 3 non-Soviet-bloc. The references to English-language publications read as follows: I. H. Holloman. Fracture and the Structure of Metals, TASM, 1949; W. P. Roop. Evolution for Structure Design of Laboratory Data of Flow and

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S/123/60/000/012/013/020
A161/A133

The effect of the temperature and duration of...

Fracture of Steel, TASM, 1949; I. D. Lubban. Notch Tensile Testing, TASM, 1949.

ASSOCIATION: Ukrainskaya akademiya sel'skokhozyaystvennykh nauk (The Ukrainian Academy of Agricultural Sciences)

SUBMITTED: October 29, 1959

Card 4/4

PHASE I BOOK EXPLOITATION SOV/5511

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye.

Metallovedeniye i termicheskaya obrabotka (Physical Metallurgy and Heat Treatment of Metals) Moscow, Mashgiz, 1961. 330 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov UkrSSR. Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye.

Editorial Board: M. P. Braun, Doctor of Technical Sciences, I. Ya. Dekhtyar, Doctor of Technical Sciences, D. A. Draygor, Doctor of Technical Sciences, I. S. Kazanichnyye, Engineer, Ye. A. Markovskiy, Candidate of Technical Sciences, V. G. Permyakov, Doctor of Technical Sciences, and A. V. Chernovol, Candidate of Technical Sciences; Ed.: M. S. Soroka; Tech. Ed.: M. S. Gornostaypol'skaya; Chief Ed., Mashgiz (Southern Dept.): V. K. Serdyuk, Engineer.

Card 1/10

PURPOSE: This collection of articles is intended for scientific workers and technical personnel of research institutes, plants, and schools of higher technical education.

COVERAGE: The collection contains papers presented at a convention held in Kiyev on problems of physical metallurgy and methods of the heat treatment of metals applied in the machine industry. Phase transformations in metals and alloys are discussed, and results of investigations conducted to ascertain the effect of heat treatment on the quality of metal are analyzed. The possibility of obtaining metals with given mechanical properties is discussed, as are problems of steel brittleness. The collection includes papers dealing with kinetics of transformation, heat treatment, and properties of cast iron. No personalities are mentioned. Articles are accompanied by references, mostly Soviet.

TABLE OF CONTENTS:

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BORSHCHEVSKIY, V.L.; GELLER, A.L.

On the problem of ainhum. Vest. derm. i ven. 34 no.7:62-64 '60.
(MIRA 13:12)

(TOES—DISEASES)

BRAUN, M.P.; VINOKUR, B.B.; GELLER, A.L.

Effect of added alloying of chromium-manganese steel on its hardenability. Izv. vys. ucheb. zav.; chern. met. 5 no.8:128-134 '62. (MIRA 15:9)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
(Chromium-manganese steel—Hardening)

S/743/62/000/001/005/008

AUTHORS: Geller, A. L., Braun, M. P., Vinokur, B. B.

TITLE: The effect of the pre-quench temperature on the properties of multiple-alloy steels.

SOURCE: Struktura i svoystva litykh splavov. no.1. Inst. lit. proizv. AN USSR. Kiev, Izd-vo AN UkrSSR, 1962, 76-81.

TEXT: The paper adduces the results of experimental investigations on C-Mn steels additionally alloyed by strongly carbide-forming elements, which lead to the formation of a complex alloyed carbide of the cementite type, which has a relatively low temperature of dissolution in austenite. It is found that a carbide-forming element is dissolved partly in the multiply-alloyed cementite. In this process the bonding forces between the element and the C are significantly weakened; this effect leads to a lowering of the dissolution temperature in the austenite of the alloyed carbide to a value that is lower than that of the individual carbide by itself but higher than that of the cementite. Secondly, a part of the element introduced combines with the C, forming a separate carbide of the type MeC (Me=metal), which is highly austenite-dissolution resistant. However, the formation of the separate carbide engenders separation of the parts of the alloyed cementite, i.e., the freeing

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of the alloying elements from the carbide and their transfer into the solid solution, which in turn compensates, as it were, for the loss of C and leads to a hardening of the solid solution and an elevation of its hardenability. The investigation was focused primarily on the determination of the effect of the pre-quench temperature on the degree of dissolution of the carbide-forming elements in the austenite by means of the dilatometric method. The influence of the pre-quench temperature on the position of the critical points during cooling are investigated for steels 30XГBT (30KhGVT), 30XГBM (30KhGVM), and 30X2Г MT (30KhGMT), and are shown graphically for cooling in the furnace and in air. It is found that, if steel is alloyed with a Ti-containing complex, the quench temperature for the obtainment of elevated mechanical properties with minimal tendency toward temper-brittleness must exceed the upper critical point by 80-100°C. It is concluded that steels 30KhGVT and 30Kh2GMT must be quenched from a temperature of 900° to obtain optimal mechanical properties and suppress temper-brittleness. An increase in pre-quench temperature from 850° to 920°, for example, improves the tensile strength by 13 kg/mm^2 and the yield limit by 16 kg/mm^2. There are 3 figures and 3 tables. No references.

ASSOCIATION: Institut liteynogo proizvodstva, AN USSR (Institute of Casting Production, AS UkrSSR).

BRAUN, M. P.; VINOKUR, B. B.; KONDRASHEV, A. I.; GELLER, A. L.

Search for a nickel-free structural steel. Izv. vys. ucheb. zav.; chern. met. 5 no.12:126-130 '62. (MIRA 16:1)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.

(Steel, Structural—Testing)
(Chromium-manganese steel—Brittleness)

BRAUN, Mikhail Petrovich; VINOKUR, Bentsikhanovich; KONDRASHEV, Arkadiy Ivanovich; GELLER, Aleksandr L'vovich; FIKSEN, N.V., kand. tekhn. nauk, retsenzent; FURER, P.Ya., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn.red.

[Properties of complex-alloy steel for the manufacture of large-section parts] Svoistva kompleksnolegirovannykh stalei dlia izdelii krupnykh sechenii. Moskva, Mashgiz, 1963. 207 p. (MIRA 16:8)

(Steel alloys--Testing)
(Machinery--Design and construction)

BRAUN, M.P.; VINOKUR, B.B.; KONDRASHEV, A.I.; GELLER, A.L.

Chromium-manganese steel for large forgings. Metalloved. i term. obr. met. no.10:1-9 O '63. (MIRA 16:10)

1. Institut liteynogo proizvodstva AN UkrSSR.

GELLER, A.L.; BRAUN, M.P.; VINOKUR, B.B.

Effect of the temperature of heating on the properties of complex-alloy steels. Struk.i svois.lit.splav. no.1:76-81 '62. (MIRA 15:5)

(Steel alloys—Hardening) (Metals, Effect of temperature on)

KONDRASHEV, A.I.; BRAUN, M.P.; GELLER, A.L.; VINOKUR, B.B.

Effect of complex alloying on the secondary order temper brittleness of chromium-manganese steel. Struk.i svois.lit.splav. no.1:102-109 '62. (MIRA 15:5)
(Chromium-manganese steel--Brittleness)

VINOKUR, B.B.; GELLER, A.L.; BRAUN, M.P.; KONDRASHEV, A.I.

Tendency of high-strength steels toward temper brittleness.
Struk.i svois.lit.splav. no.1:116-124 '62. (MIRA 15:5)
(Steel--Brittleness) (Metals, Effect of temperature on)

GELLER, A.S., veterinarnyy vrach; IVAKHNENKO, G.M., veterinarnyy vrach.

Experiment of using pentothal sodium on horses. Veterinariia 31 no.12:47 D '54. (MLRA 7:12)

1. Skolevskaya rayvetlechebnitsa, Drogobychskoy oblasti.
(PENTOTHAL SODIUM) (HORSES--DISEASES)

L 18588-65 EWT(m)/EWA(d)/EWP(t)/EWP(b) MJW/JD
ACCESSION NR: AP4045680 S/0130/64/000/009/0014/0015

AUTHOR: Geller, A. Ye.; Yelinson, G. L.; Moshkevich, Ye. I.

TITLE: Improvement of stainless steel casting

SOURCE: Metallurg, no. 9, 1964, 14-15

TOPIC TAGS: casting, ingot mold, surface defect, lining improvement, riser pad, firebrick, slag wool

ABSTRACT: P. I. Muki and A. Ye. Geller improved the casting conditions and reduced the amount of reject by 60% of stainless steel Kh18N10T ingots as a result of inserting a chamotte nozzle with an aperture having a diameter of 70 mm and washing out the nozzle passage with an oxygen jet before the casting of the last ingot. This method secured a more uniform filling of the ingot mold and had a beneficial effect on the surface quality. The rate of teeming rose from 126-159 sec. to 119-135 sec. for an 11.8 ton ingot body. The number of reject due to surface defects was lowered to 0.05-0.1% as against the original 0.5-0.3%. The

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L 13588-65
ACCESSION NR: AP4045680

use of a 20 to 25 mm thick layer of slag wool for the riser pad lining near the frame and 40 mm thick fireclay brick instead of the regular 65 mm thick brick also proved highly beneficial. The heat loss through the riser pad wall was reduced and the service life of the lining increased to 30-40 teemings. Orig. art. has: 2 figures.

ASSOCIATION: Zavod "Dneprospetsstal"(Dneprospetsstal' Plant)

SUBMITTED: 00 ENCL: 00

SUB CODE: MM NO REF SOV: 000 OTHER: 000

Card 2/2

GELLER, B. A.;

" Untersuchungen des Mechanisum des Platzwechsels der Aminogruppen bei der Kondensation primarer Aminoverbindungen und in Reak tion skomplexen mit Isotopen"

Third Working Conference on Stable Isotopes, 28 October to 2 November 1963, Leipzig.

PROCESSES AND PROPERTIES INDEX

Determination of small quantities of iron with quinaldinic acid. O. A. Dutenko and B. A. Geller. *J. Applied Chem. (U. S. S. R.)* 10, 1062 72 (in German 1073) (1937).—Case I: In the absence of H_3PO_4: Free the sample from silicic acid by the usual method; if the amt. of Al is less than 4.5%, dissolve the soln. in a volumetric flask and transfer an aliquot to a 100-cc. volumetric flask. Dilute the aliquot to 70–75 cc. and neutralize with NH_4OH to a methyl-yellow end point. Treat the resulting soln. with 5% $NH_2OH.HCl$ soln., followed by 1% Na quinaldinate soln., then 10% KCN, and dilute to the mark. After filtration, compare the resulting soln. with a standard in the colorimeter. In the case of the presence of large amts. of Al (more than 4.5%), it is necessary to ppt. all trivalent hydroxides with NH_4OH, to dissolve the ppt. in HCl and carry out the detn. as above. Case II. In the presence of H_3PO_4: Treat as above but add to the standard soln. the same amt. of H_3PO_4 as is in the sample. A. A. Podgorny

Four references

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

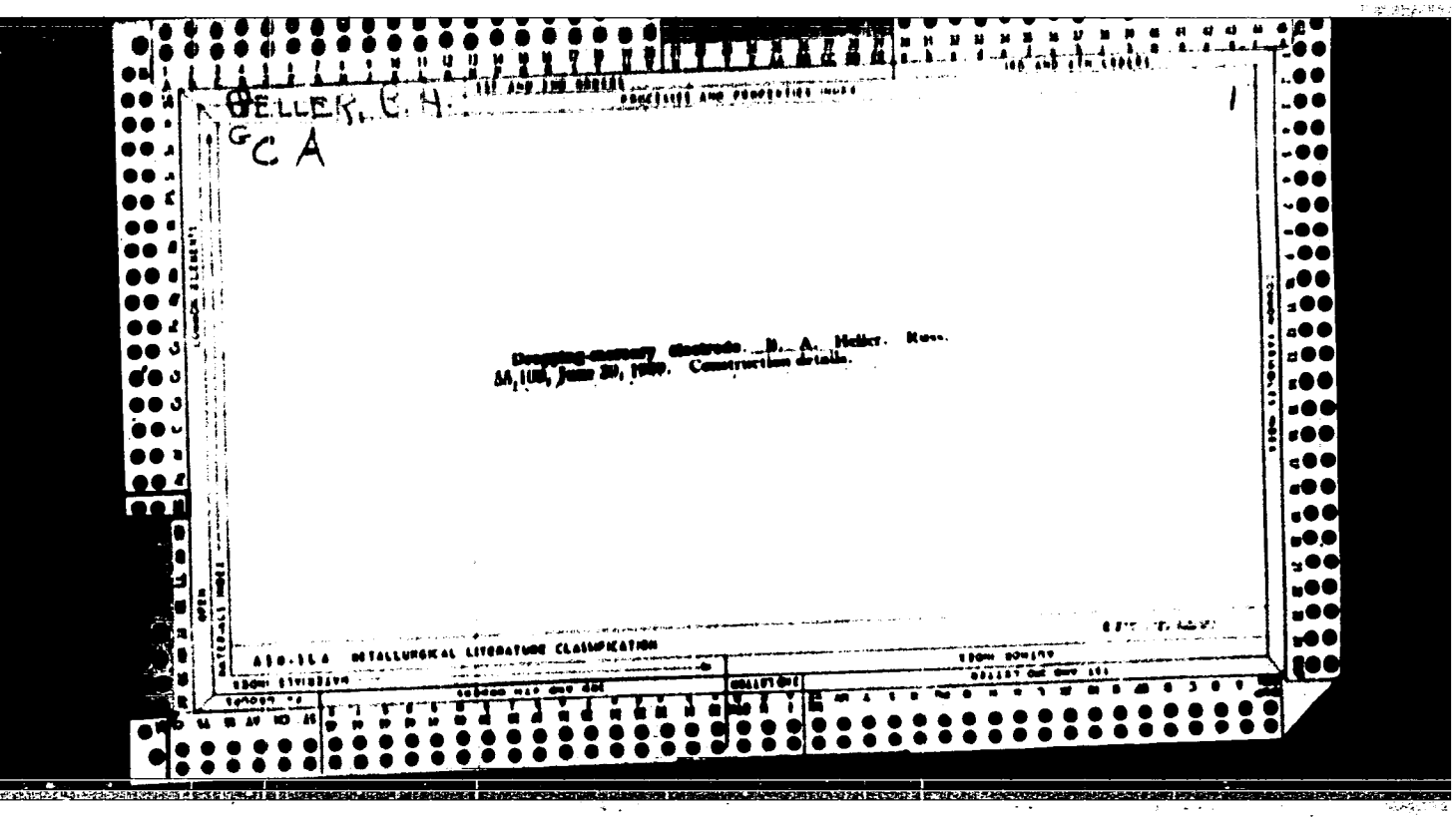
GELLER, B. A.

Ca

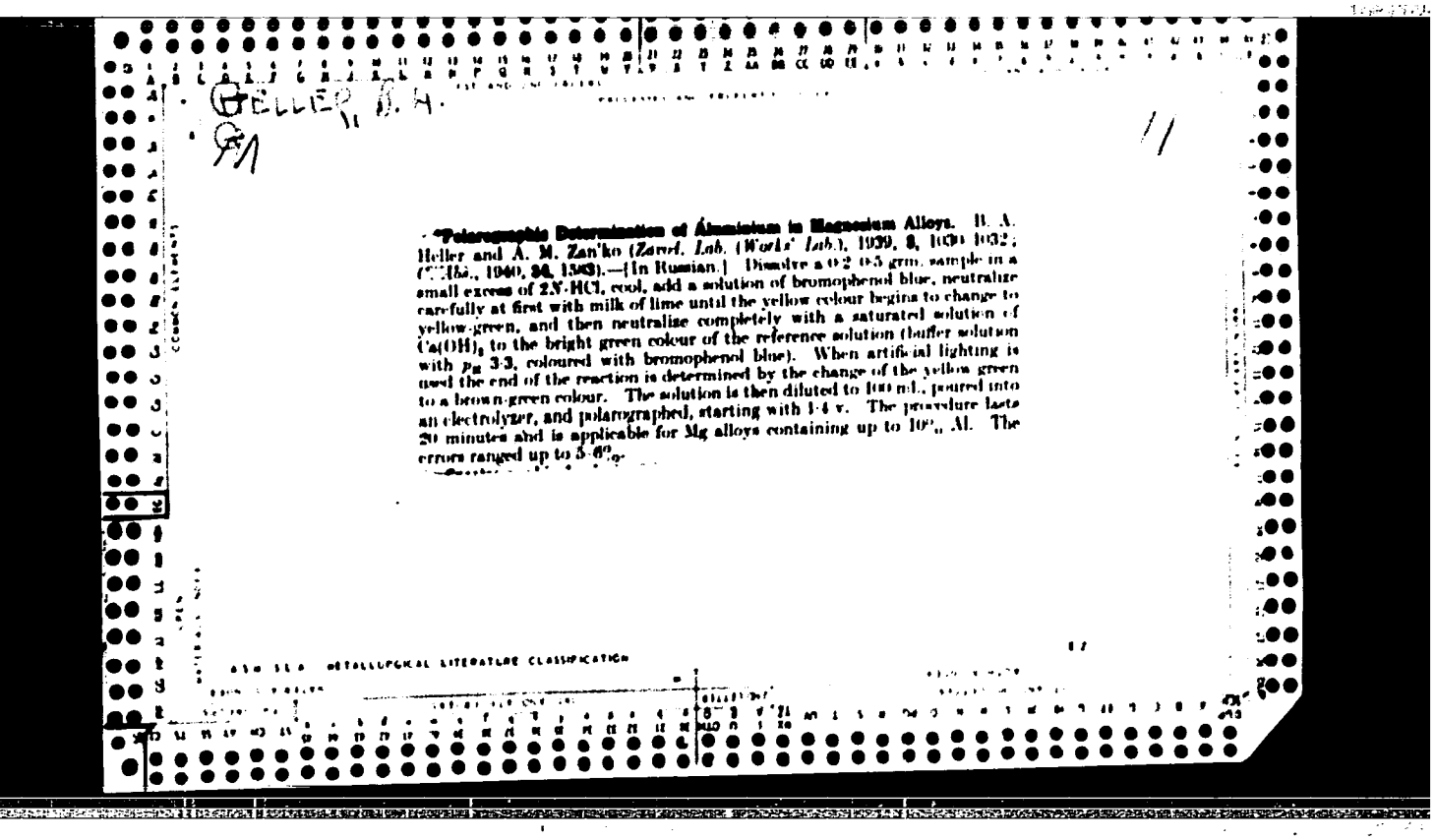
4

Construction of a dropping mercury electrode B. A. Geller. *Rev. Inst. Physik. Chem., Akad. Nauk S.S.S.R.* 11, 131 (1936); *Khim. Referat. Zhur.* 2, No. 5, 131(1939).—Two types of Hg electrodes are described in which Hg does not come in contact with the rubber. This prevents its contamination as well as the contamination of the capillary. The change of pressure of the flowing Hg is obtained either by the immersion into Hg of the glass tube (increasing its level) or by means of a rising pressure ball. The Hg of the pressure ball is sepd. from the dropping Hg by an air interface. The dropping electrode can be used for a considerable time in both types without replacing the capillary. W. R. Henn

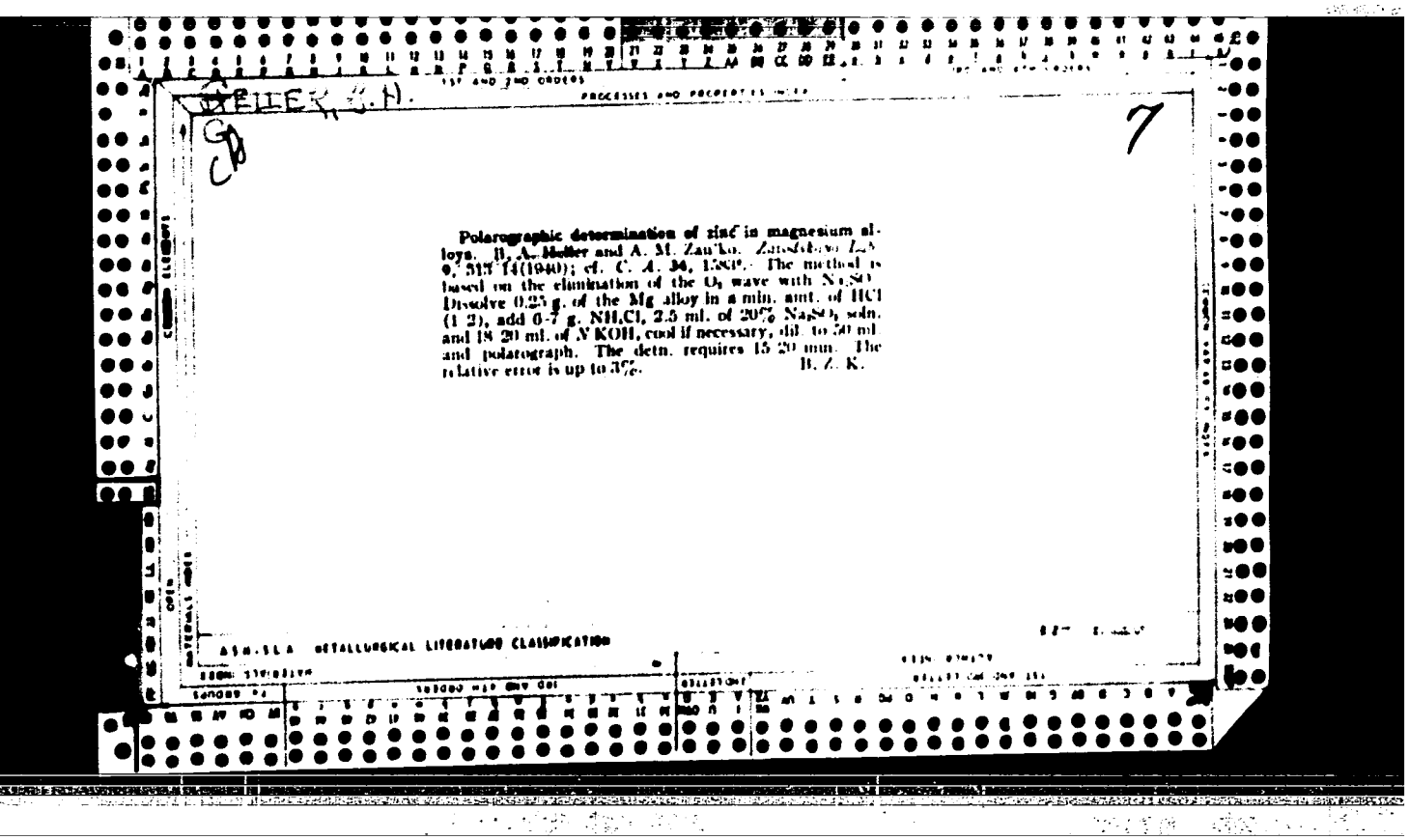
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000514620011-1"



Polarographic Determination of Aluminium in Magnesium Alloys. B. A. Heller and A. M. Zan'ko (*Zavod. Lab.* (*Works' Lab.*), 1939, **8**, 1030–1032; *C.Abs.*, 1940, **34**, 1583).—[In Russian.] Dissolve a 0·2–0·5 grm. sample in a small excess of 2*N*-HCl, cool, add a solution of bromophenol blue, neutralize carefully at first with milk of lime until the yellow colour begins to change to yellow-green, and then neutralize completely with a saturated solution of $Ca(OH)_2$ to the bright green colour of the reference solution (buffer solution with p_H 3·3, coloured with bromophenol blue). When artificial lighting is used the end of the reaction is determined by the change of the yellow green to a brown-green colour. The solution is then diluted to 100 ml., poured into an electrolyzer, and polarographed, starting with 1·4 v. The procedure lasts 20 minutes and is applicable for Mg alloys containing up to 10% Al. The errors ranged up to 5·6%.



Polarographic determination of zinc in magnesium alloys. H. A. Moller and A. M. Zaučko. *Zavodskaya Lab.* 9, 513-14(1940); cf. *C. A.* 34, 1580⁹. The method is based on the elimination of the O_2 wave with Na_2SO_3. Dissolve 0.25 g. of the Mg alloy in a min. amt. of HCl (1:2), add 0.7 g. NH_4Cl, 2.5 ml. of 20% Na_2SO_3 soln. and 18-20 ml. of *N* KOH, cool if necessary, dil. to 50 ml. and polarograph. The detn. requires 15-20 min. The relative error is up to 3%. B. Z. K.

A.C.S.

Polarographic determination of titanium. A. M. Zan'ko, D. A. Gellman, and A. D. Nikitin. *Zavodskaya Lab.*, 9, [illegible] (1940); *Khim. Referat. Zhur.*, 4 [3] [illegible] (1941).—Small amounts (0.1 to 0.5%) of Ti can be determined polarographically in the presence of large quantities of Fe and Al (80 to 90%). The determination should be conducted at an acidity not less than 0.05 *N* in the presence of tartaric or citric acid. Fe^{+++} and O interfere. The former is changed to the divalent form by shaking it with the Hg of the anode for 5 to 10 min. Simultaneously, the O is completely removed from the solution by reaction with the reduced Fe. For the analysis of kaolin, 0.3 gm. is treated with H_2SO_4 + HF, and the insoluble residue is fused with potassium pyrosulfate. The fusion is dissolved in the first filtrate, a little iron sulfate is added to it, and the volume is made to 50 cc. Ten milliliters are taken into the electrolyzer, N is passed for 5 min., 0.5 gm. of tartaric acid is added, and the solution is analyzed. An alternate method consists in dissolving the sample in HCl, igniting the insoluble residue, treating it with HF, and fusing with potassium pyrosulfate. The fusion is dissolved in the first filtrate, and the analysis is finished as before. The results obtained by this method agree with those obtained gravimetrically and colorimetrically.

M. Ho.

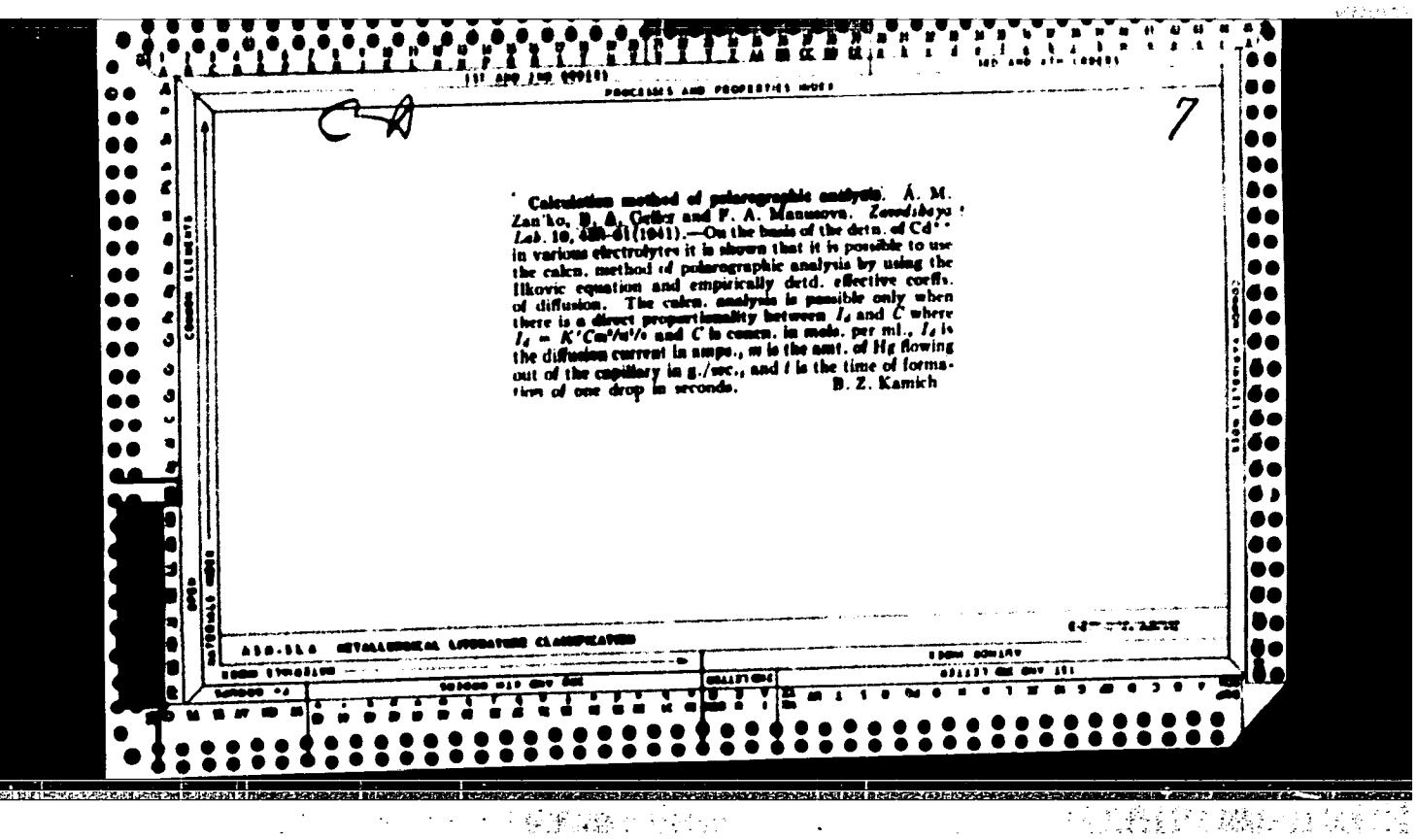
HELLER, G. A.

PROCESSES AND PROPERTIES INDEX

Ca

Polarographic analysis of magnesium alloys. B. A. Heller and A. M. Zan'ko. *Ber. Ukrain. Wiss. Forschungsinst. physik. Chem., Akad. Wiss. Ukr. S. S. R.* 12, 169-76 (in Russian, 176; in German, 176) (1940); cf. C. A. 34, 7210[a]. Hydrolysis of Al^{+++} at a pH of 3-4 causes error in the polarographic detn. of Al and also in the calibration curve below the start of the coordinates. The following method is suggested for the rapid detn. of up to 10% Al in Mg alloys. Dissolve 0.2-0.5 g. sample in 2 N HCl, cool, add bromophenol blue, neutralize gradually with milk of lime to yellow-green coloration and then with $Ca(OH)_2$ to a bright-green of the comparator - a buffer soln. of pH of 3.4 and contg. bromophenol blue. Dil. the soln. to 100 ml. and take the polarogram starting at 1.4 v. The error is 0.8%. B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



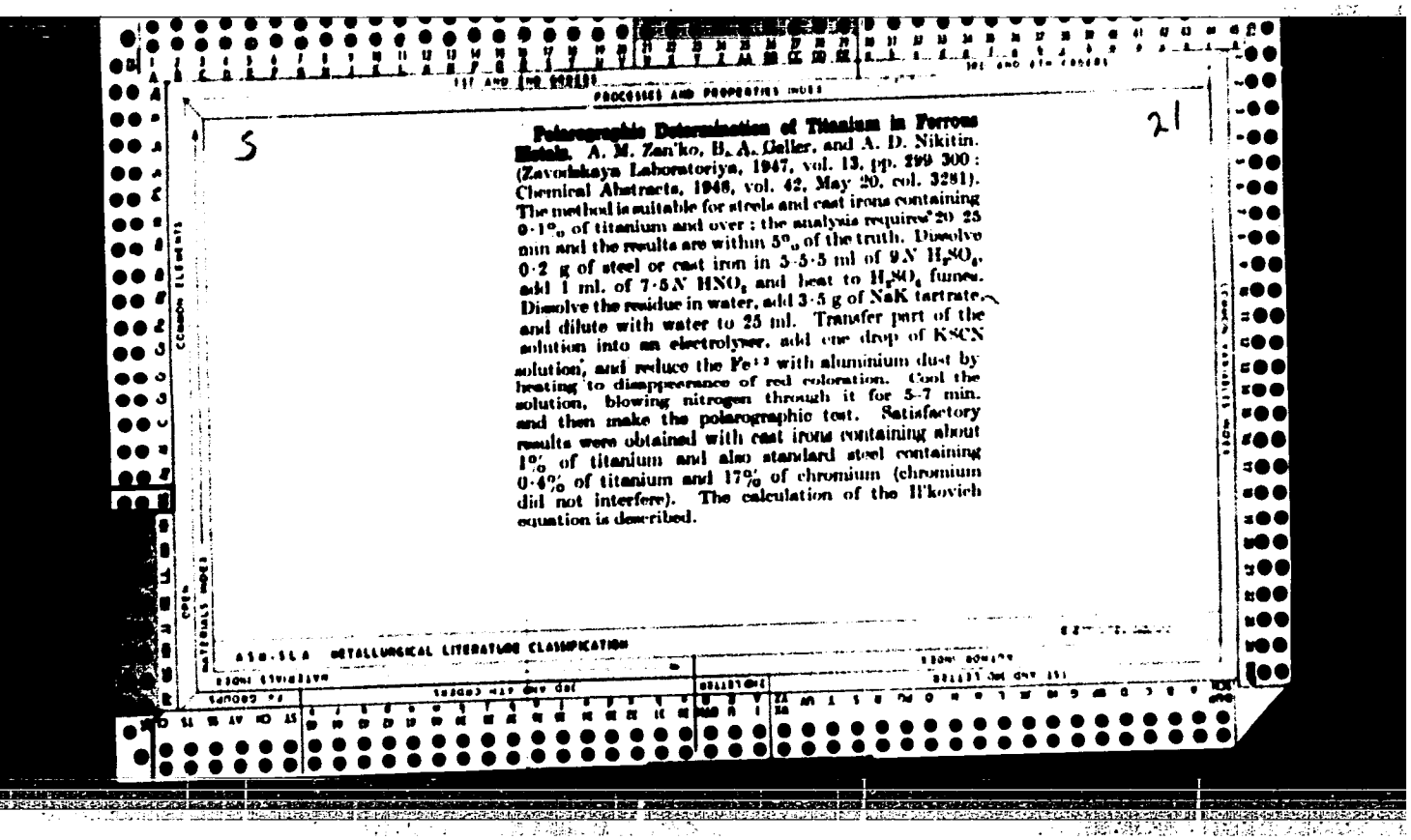
Calculation method of polarographic analysis. Á. M. Zan'ko, B. A. Geller and F. A. Manasova. *Zavodskaya Lab.* 10, 688-91(1941).—On the basis of the detn. of Cd^{++} in various electrolytes it is shown that it is possible to use the calcn. method of polarographic analysis by using the Ilkovic equation and empirically detd. effective coeffs. of diffusion. The calcn. analysis is possible only when there is a direct proportionality between I_d and C where $I_d = K'Cm^{2/3}t^{1/6}$ and C is concn. in mols. per ml., I_d is the diffusion current in amps., m is the amt. of Hg flowing out of the capillary in g./sec., and t is the time of formation of one drop in seconds. B. Z. Kamich

PROCESSES AND PROPERTIES INDEX

CA 2

Magnitude of the diffusion coefficient in the equation of Il'kovič. A. M. Zan'ko, B. A. Geller and F. A. Manusova. *J. Phys. Chem.* (U.S.S.R.) 15, 797-808(1941).—The Il'kovič (*C. A.* 33, [illegible]) coeffs. of diffusion $D = [(Id)/(0.627\ nFCm^{2/3}t^{1/6})]^2$ cm.^{2}/sec. (m = mass of Hg flowing from capillary per sec., t = time, C = concn.) of Cd^{++} and Tl^+ ions in 0.1 N solns. of various electrolytes at 25° were detd. by the polarographic, the capillary-mercury-electrode and the Kolthoff-Laitinen methods. The values of $D \times 10^5$ cm.^{2}/sec. obtained for Cd and Tl were, resp.: in KCl, 1.00, 2.20; $MgCl_2$, 1.00, 2.17; $AlCl_3$, [illegible], [illegible]; K_2SO_4, 0.995, 2.18; $Al_2(SO_4)_3$, 0.85, 1.60; H_2SO_4, 0.97, 2.13; $MgSO_4$, ——, 1.94. The mean value of [illegible] is 16.0 ± 0.8. The Nernst equation, $D = URT/nF$, using the ionic mobilities at infinite diln. is not applicable. F. H. Rathmann

METALLURGICAL LITERATURE CLASSIFICATION



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Polarographic Determination of Titanium in Ferrous Metals. A. M. Zan'ko, B. A. Geller, and A. D. Nikitin. (Zavodskaya Laboratoriya, 1947, vol. 13, pp. 299–300: Chemical Abstracts, 1948, vol. 42, May 20, col. 3281). The method is suitable for steels and cast irons containing 0·1% of titanium and over: the analysis requires 20–25 min and the results are within 5% of the truth. Dissolve 0·2 g of steel or cast iron in 5–5·5 ml of 9*N* H_2SO_4, add 1 ml. of 7·5*N* HNO_3 and heat to H_2SO_4 fumes. Dissolve the residue in water, add 3·5 g of NaK tartrate, and dilute with water to 25 ml. Transfer part of the solution into an electrolyser, add one drop of KSCN solution, and reduce the Fe^{+3} with aluminium dust by heating to disappearance of red coloration. Cool the solution, blowing nitrogen through it for 5–7 min. and then make the polarographic test. Satisfactory results were obtained with cast irons containing about 1% of titanium and also standard steel containing 0·6% of titanium and 17% of chromium (chromium did not interfere). The calculation of the Il'kovich equation is described.

GELLER, B. A.

PA 4/49T20

USSR/Chemistry - Analysis, Titration Apr 48
Chemistry - Apparatus, For Analytical Studies

"Construction of a Semimicro Gas Analyzer," S. G. Demidenko, B. A. Geller, Ukrainian Physicochem Inst, 1 p

"Zavod Lab" Vol XIV, No 4 - p. 101

Diagram shows absorption-type apparatus for volumetric analysis. Volume of test sample is 1 - 2 cc. Due to large surface and small volume, absorption proceeds fairly rapidly, e.g., oxygen from air by pyrogallol takes 4-5 minutes, accuracy being ± 0.2%.

[redacted] 4/49T20

GELLER, B. A.

PA 68741

USSR/Chemistry - Polarographs Feb 1948
Chemistry - Polarography, Wave Height in

"Effect of the Speed of Dropping on the Height of the Polarographic Wave," B. A. Geller, Inst Phys Chem imeni L. V. Pisarzhevskiy, Acad Sci USSR, 2 pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 2

Criticizes article by Chirkov which appeared in "Journal of General Chemistry," Vol XIV, 1944. Geller states that article departs too far from facts. Graph and supporting argument given. Submitted 18 Oct 1946.

68741

USSR/Engineering - Manometers Feb 50
Pyrometers

"Contact Pyrometers for Automatic Vacuum Control," B. A. Geller, Inst of Phys Chem, Acad Sci USSR, 1 p

"Zavod Lab" Vol XVI, No 2

Describes contact manometer for industrial and laboratory use which allows rapid and simple variation of pressure from zero to 760 mm. Pressure limits are determined by length of manometer.

159T27

GELLER, B. A.; NIKLUKHIN, G. P.

GELLER, B. A.; NIKLUKHIN, G. P.

Nitrogen - Isotopes

Nitrogen isotopes in chemistry. Usp. khim. 21 No. 7, 1952.

Monthly List of Russian Accessions. Library of Congress. November 1952. UNCLASSIFIED.

GELLER, B.A.

USSR.

The mechanism of formation of secondary amines studied with heavy nitrogen. A. I. Brodskiĭ, B. A. Geller, and R. Yu. Shelufalu. *Doklady Akad. Nauk S.S.S.R.* 95, 273-6 (1954).—Heating together mixts. of primary aromatic amines and their HCl salts yields NH_4Cl and secondary amines. The reaction was studied by means of N^{15}-labeled $PhNH_2$ (prepd. from N^{15}-labeled NH_4Cl, which yielded labeled NH_3, and this with BzCl gave labeled $BzNH_2$, which was converted to $PhNH_2$ by NaOBr treatment), 1-$C_{10}H_7NH_2$, and Bz_2NH. The reactions were run at 230-40° and the products exaund. for N^{15} content with a mass spectrometer. In the formation of 1-$C_{10}H_7NHPh$ the NH_2 group of the naphthylamine is eliminated. In the formation of $BzNHPh$, the NH_2 group of $BzNH_2$ is cleaved. In the formation of Ph_2NH from labeled $PhNH_2.HCl$ and ordinary $PhNH_2$, the N^{15} content is equally distributed between both reaction products indicating that direct action of $PhNH_3^+$ ion is excluded; this also shows a relatively rapid transfer of a proton from one amine to another; this transfer occurs very rapidly even at room temp. Thus in a RNH_3^+-$R'NH_2$ mixt. the proton passes rapidly from 1 mol. to the other and in the formation of a secondary amine or substituted amide the primary amines act as bases. The role of the amine salt consists of facilitating proton transfer, catalyzing the reaction according to the usual acid catalysis scheme. No isotope-N exchange occurs in the systems $PhNH_2$-1-$C_{10}H_7NH_2$, NH_4Cl-$PhNH_2$, NH_4Cl-$BzNH_2$, or $PhNH_2$-$BzNH_2$. Thus the above reactions cannot occur by simultaneous cleavage of both amino groups.

G. M. Kosolapoff

62

Inst. Physics Chem. im L. V. Pisarzhevskii, AS USSR

(2)

GELLER, B. A.

The significance of trace amounts of copper in transformations of nitrogen in oat leaves. L. K. Ostrovskaya and B. A. Geller. *Doklady Akad. Nauk S.S.S.R.* 103, 727–30(1955).—Addn. of trace amounts (200 mg. per plant) of $CuSO_4$ to Cu-free peat soil aids considerably in growth, in total protein, and in general plant development. Cu deficiency is thus reflected in lower N content. The plants were given $(NH_4)_2SO_4$ supplement after 26 days when apparent N deficiency became evident. Deficiency of Cu retards exchange between N^{14} and N^{15} very significantly, particularly in the protein N fraction, indicating that Cu participates in protein synthesis. G. M. Kosolapoff

62

(1)

Inst. Plant Physiology and Agrochemistry and Inst. Phys. Chem., AS USSR

GELLER, B.A.

C-2

US3R/Nuclear Physics

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11061

Author : Geller, B.A.

Inst : Institute of Physical Chemistry, Academy of Sciences, Ukrainian SSR

Title : Concentration of Heavy Isotope of Nitrogen by Thermodiffusion.

Orig Pub : Zh. fiz. khimii, 1956, 30, No 8, 1871-1876

Abstract : An experiment was made in concentrating heavy nitrogen in a thermodiffusion setup, consisting of seven columns of total length 22 meters, with an effectiveness corresponding to 730 theoretical trays. The experiment lasted 230 days. The maximum concentration of N^{15} reached was 12.9%. The kinetics of the enrichment and the distribution over the length of the setup was studied. Satisfactory

Card 1/2

USSR/Nuclear Physics

C-2

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 11061

agreement with the theory by A. I. Brodskiy was found. The maximum productivity of the setup turned out to be 0.2 mm/hr at a concentration of 10% N^{15}. 6.1 grams of ammonium chloride with a content of N^{15} ranging from 1.2 to 9% was made from the concentrates of the N^{15}. This was used for isotopic research.

Card 2/2

AUTHOR: Geller, B. A. SOV/79-28-7-48/64

TITLE: Investigation of the Mechanism of the Diazo Substitution in Azo Dyes of the Naphthalene Series by Means of Heavy Nitrogen Atoms (Izucheniye mekhanizma diazoobmena v azokrasitelyakh naftalinovogo ryada s pomoshch'yu tyazhelogo izotopa azota)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 7, pp 1944 - 1950 (USSR)

ABSTRACT: In order to explain the mechanism of the diazo substitution, viz. the place of decomposition of the compounds, the author investigated the reaction of the 4-benzenesulfo acid-(1-azo-1)-nephthene-2(I) with p-nitrobenzenediazonium hydroxide (II) by means of charged nitrogen. Within a test series he carried out the reaction of the compound (II) produced from p-nitro aniline and radioactivated potassium nitrite (with 9% N^{15}). In this case the marked nitrogen atoms are denoted by the sign N^{15} in the scheme (1), with the other nitrogen atoms being considered as not concerned and independent of the indices. In the other test series the marked nitrogen atom was introduced into the

Card 1/3